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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/723,655	11/28/00	HERMAN T	IR-1986 DIV

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EXAMINER	
BROCK II, P	
ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 09/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/723,655	HERMAN, THOMAS	
	Examiner	Art Unit	
	Paul E Brock II	2815	

-- The MAILING DATE of this communication appears on the cover sheet with th corr spondenc addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2001* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9-14 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-14 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Newly filed claim 15 has been renumbered as claim 20. Please see CFR 1.126.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 9, 13 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinzer (USPAT 5731604, Kinzer).

Kinzer discloses in figures 1 – 10 the process of manufacturing a MOS gated device.

Kinzer discloses in figure 1 forming a gate oxide layer (31) atop a silicon surface (30) of one conductivity type. Kinzer discloses in figure 1 forming a layer of polysilicon (32) atop the gate oxide layer. Kinzer discloses in figures 2 and 3 etching the polysilicon layer and the underlying gate oxide layer into a plurality of spaced stripes (33, 34 and 35) of oxide and polysilicon overlying the oxide. Kinzer discloses in figures 4 and 5 implanting and diffusing a plurality of spaced first base diffusion stripes (40 and 41) of the other conductivity type into the silicon surface, using the stripes of polysilicon as a mask. Kinzer discloses in figures 6 and 7 implanting and diffusing a plurality of source diffusions (51) in to the first base diffusion stripes, using the stripes of polysilicon as a mask, and leaving invertible channel regions along the outer

edges of the first base diffusion stripes. Kinzer discloses in figures 6 and 7 diffusing second base diffusion stripes (50), into the silicon surface, using the stripes of polysilicon as a mask, to a depth below that of the source diffusions and a width substantially equal to the space between the opposite edges of adjacent pairs of the polysilicon stripes.

With regard to claim 13, Kinzer discloses in figures 7 – 10 formation of insulation spacer layers (60) over the type and edges of the polysilicon stripes and the etching of shallow openings through central portions of the source regions and into the first base diffusions (80 and 81) and thereafter depositing a metal layer (84) over the upper surface of the device to contact the source regions and the first and second base diffusions.

With regard to claim 20, Kinzer discloses in figures 7 – 10 wherein the first base diffusions and the second base diffusions are formed at substantially the same depth.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 10 – 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinzer.

With regard to claims 10 – 12, Kinzer discloses in column 4, lines 55 – 65 that the dimensions of the polysilicon stripes are about 5 – 10 microns. Kinzer does not disclose that the polysilicon stripes have a width of about 3.1 microns and a spacing of about 1.25 microns.

Kinzer also does not disclose that the first base diffusions have a depth of about 1.25 microns and the source diffusions have a depth of about 0.4 microns. It is well known in the art to vary dimensions of device features as a matter of design choice. It would have been obvious to one of ordinary skill in the art at the time of the present invention to vary the dimensions of the polysilicon stripes to have a width of about 3.1 microns and a spacing of about 1.25 microns, and depths of base diffusions to have a depth of about 1.25 microns and the source diffusions have a depth of about 0.4 microns of Kinzer in order to maximize the characteristics of current flow through the channel region.

With regard to claim 14, Kinzer discloses in figures 7 – 10 formation of insulation spacer layers (60) over the type and edges of the polysilicon stripes and the etching of shallow openings through central portions of the source regions and into the first base diffusions (80 and 81) and thereafter depositing a metal layer (84) over the upper surface of the device to contact the source regions and the first and second base diffusions.

Response to Arguments

6. Applicant's arguments filed 8-13-01 have been fully considered but they are not persuasive. The applicant's arguments that "Kinzer does not show or suggest 'implanting and diffusing a plurality of spaced first base diffusion stripes... using said stripes of polysilicon as a mask'. Kinzer only shows using a photoresist 33 as a mask for implanting a first base diffusion." It is clear in figure 4, that not only is photoresist 33 used as a mask, but stripes of polysilicon 32 are also used as the mask in the implantation of a plurality of spaced first base diffusion stripes. The mask can be considered to be made of oxide 31, polysilicon 32 and photoresist 33, and

therefore the stripes of polysilicon are used as a mask while implanting and diffusion a plurality of spaced first base diffusion stripes.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II
September 24, 2001

EDDIE LEE
SUPERVISORY PATENT EXAMINER
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